REMARKS

Needed changes are made in the claims for formal reasons, and also to sharpen the definition of the invention relative to the cited references.

Reconsideration is accordingly respectfully requested, for the rejection of the claims as anticipated by NAKAMARU et al. or SHIBANAI et al. or SMITH et al. or KODAMA et al., or as unpatentable over KODAMA et al. or SMITH et al. in view of SHIBANAI et al.

Claim 1 has been amended to incorporate the features that in this invention, vapor from a terpenoid or a mixture thereof is released into the environment to be controlled by natural unforced evaporation from an emission element of porous absorbent material so as to achieve a release rate of between 40 and 120 mg per hour, with the emission pad having been pre-impregnated with the terpenoid or mixture thereof in liquid form. Basis for these amendments is found in the specification as published on page 5, lines 9-11 and 15-18, and page 4 line 17.

Background

The problem addressed by the present invention is how to reduce or remove the ozone levels in an environment where ozone is generated in a simple and cost effective way without requiring the use of fans, special gelling compositions or the like, whilst still achieving a controlled rate of evaporation

over an extended working life of at least several weeks. The aim is to avoid excess levels and particularly to maintain the levels below those likely to cause respiratory difficulties for asthmatics and others with respiratory illnesses. Applicants have solved this problem by producing a simple yet ingenious arrangement in which a terpene or mixture thereof is impregnated into an emission element of porous absorbent material and caused to release vapor by natural unforced evaporation at a rate of between 40 and 100 mg per hour. The innovation lies partly in the inventor's research in determining that, having due regard to the stability of ozone and the likely office environment, the ozone levels may be maintained at a "safe" level for those affected by respiratory ailments such as asthma by releasing terpenoid vapor at a rate of between 40 and 120 mg per hour.

The invention also lies in overcoming a considerable technical prejudice that terpenoid vapor cannot be released at a controlled rate without special measures such as the use of gelling agents and alcohols, fire retardants, etc. Asthma is triggered by many different types of substances and therefore it is highly desirable to keep to a minimum volatile agents other than the terpenoid or mixture thereof which might trigger asthma symptoms, and so a further part of the inventiveness is achieving a suitable evaporation rate without additional materials. The cited documents clearly demonstrate that the present invention

has overcome an established technical prejudice, to the extent that they each require special means or additives.

NAKAMARU et al. disclose an air treatment apparatus in which a filter is located within a duct such that the air flowing through the duct passes through a honeycomb filter of activated charcoal. In the base of the device is provided a gel-like substance which releases terpene vapor to be transiently absorbed in a surface absorption reaction on the filter (column 8, lines 39-45). There is no suggestion of storing the terpene by impregnating it in liquid form into a porous absorbent emission pad. Furthermore, this arrangement requires the use of fans, ducts etc. to induce vapor production rather then unforced evaporation alone.

SHIBANAI et al. disclose an arrangement in which a gel formulation is made up of a terpenoid and a gelling agent; the gel formulation is chosen to provide slow volatilization of the terpenoid. The use of a porous absorbent pad runs contrary to the teachings therein. There is no suggestion of the use of such an emission element and furthermore the rate of release of the terpenoid vapor is very low (2.5 to 15 mg per hour (column 6, lines 65-66)). The formulation contains materials other than the gel and the terpenoid such as alcohols and gelling agents and these can be problematic as they too are potential allergens.

SMITH et al. disclose an arrangement for an air freshener and there is no hint or teaching that the fragrance

released has any ozone renewal effect. The device is intended to be placed inside another machine such as a vacuum cleaner, and not to release vapor at a controlled rate through natural unforced ventilation. There is no indication of the rate of release and in any event the release is induced by the passage of air.

KODAMA et al. disclose a device for being fitted in the outlet duct of a copier. It is not subject to natural unforced ventilation. Furthermore, glycol is added to the mixture to retard evaporation, and is a potential allergen. There is no indication of the release rate.

The following documents are not relied upon by the Examiner.

SATO et al. disclose an arrangement in which a mixture of a terpenoid, a non-combustible organic compound, and an anti-oxidant are absorbed into a polymeric network material. This requires a cocktail of components and does not disclose the selected evaporation rate defined in Claim 1. It also requires a special polymeric oil-absorbing material.

STRUTZ et al. disclose another filter device intended to be fitted into the exhaust duct of a laser printer or copies to have the exhaust air blown therethrough.

EP 529937 (GREEN et al.) discloses an air treatment apparatus which deliberately generates ozone and then causes it to react with a terpene, with the reaction products then being dissipated into a room. This is quite contrary to the teaching

of the present invention which is to reduce ozone levels. In addition, the device is intended to be a ducted fan or the like rather than operating by nature evaporation alone.

JP 04-338212 (WATABE) discloses an arrangement in which an ozone-decomposing agent vessel includes a body provided with a volatilization through-hole and a movable closure member for automatically opening the hole at a pre-set temperature. Again, there is no suggestion here of a means of achieving a prolonged, controlled evaporation rate.

JP 60-197222 (TAKANO et al.) simply suggests the use of linalool and other materials, preferably mixed with alcohol, to remove or reduce ozone. There is no suggestion as to how to address the problem of achieving an effective, prolonged release rate. D4 suggests the use of linalool and other materials, preferably mixed with alcohol, to remove or reduce ozone. There is no suggestion as to how to address the problem of achieving an affective, prolonged release rate.

Inventiveness

Rejection of claim 2 over KODAMA et al.: we refer to the above arguments on novelty and submit that there is no teaching or encouragement in KODAMA et al. to attempt to remove or reduce ozone outside the confined criteria of a copier etc. by natural unforced ventilation, there is no disclosure of the evaporation rates.

The obviousness objection to claims 14 and 15 is not relevant to patentability in view of the above claim amendments.

As the claims as now amended are believed clearly to bring out these distinctions with ample particularity and distinctness, it is believed that they are all patentable, and reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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